REMARKS

This is in response to the Office Action mailed March 12, 2010. Applicants thank the Examiner for the helpful telephonic discussion of May 7, 2010, during which the outstanding issues and possible claim amendments were discussed. Applicants believe that the present claim amendments clarify the Examiner's concerns and place the application in condition for allowance by adopting the proposed claim amendments discussed during the telephonic discussion. In the event that any outstanding issues remain concerning the claim language, the Examiner's suggestions for better wording are respectfully requested and greatly appreciated.

After entry of this amendment, claims 45, 47-61 and 63-77 are pending. The claims have been amended without prejudice or disclaimer to correct the antecedent basis and to address the various points made in the Office Action, and find support *inter alia* in the original claims. Claims 45, 60, 63 and 69 find further support in the specification, for example, at page 30, lines 26-28, and Examples 11 and 12. No new matter has been added. The above claim amendments merely provide further clarification to the claimed subject matter and thus, do not present any new issues that require further consideration or search as indicated by the Examiner during the telephonic discussion of May 7, 2010. Applicants respectfully request entry of the above claim amendments as they are believed to put the claims in condition for allowance or, alternatively, in better form for consideration on appeal. Thus, entry under 37 CFR §1.116 is correct.

Claim Rejection – 35 U.S.C. § 103

Claims 45, 47-61 and 63-77 stand rejected under 35 U.S.C. § 103(a) as being obvious over Harper *et al.* (hereinafter "Harper") in view of Sowa *et al.* (hereinafter "Sowa"), and further in view of Nykiforuk *et al.* (hereinafter "Nykiforuk"). Applicants respectfully disagree and traverse the rejection. However, to expedite prosecution, the claims have been amended without prejudice or disclaimer to recite the claimed subject matter with more specificity. It is believed that the claims as amended overcome the rejection for the reasons already of record and for the following additional reasons.

The Examiner alleges that all of the steps in the claimed method are taught in the cited references. Specifically, the Examiner alleges that Harper teaches the transformation of plants with a hemoglobin gene and the overexpresion of such a gene. The Examiner asserts that the

increase of oil and starch is a property that necessarily follows from such a transformation and isolation of oil and starch from crops is well known in the art and is a standard practice. The Examiner further contends that a step of "selecting a transformed plant with increased starch and/or oil content" such as that recited in claim 69 is nothing but selecting a successfully transformed hemoglobin-expressing plant. Applicants respectfully disagree with the Examiner's above assertions and traverse the finding of obviousness.

It is noted initially that the Examiner's above reasoning in finding obviousness is partially, if not wholly, based on the alleged lack of an "active method step of comparing the levels of oil and starch with that of non-transformed plants." Office Action at page 3. Applicants strongly disagree. However, to expedite prosecution, the claims have been amended without prejudice or disclaimer to provide further clarification by reciting a selection step in which the hemoglobin-transformed plant having an increase in starch and/or oil content is selected by comparing the starch and/or oil content of the transgenic plant with that of the wild-type control plant. This step is further exemplified in Examples 11 and 12 provided in the specification. Accordingly, it is believed that the present amendments overcome the Examiner's above assertion regarding the alleged lack of an active method step.

Moreover, as amended, the claimed method requires that a hemoglobin-transformed plant with an increase in starch and/or oil content being selected based on a comparison of the starch and/or oil content between the hemoglobin-transformed plant and the wild-type control plant. Applicants respectfully submit that the cited references, alone or in combination, do not teach or suggest such a selection step, nor does the art provide any motivation to include such a step, because the effect of overexpressing a hemoglobin gene to the content of starch and/or oil in a plant was not known until the present application.

As discussed previously, Harper discloses hemoglobin-coding genes that are involved in stress response in plants and production of transgenic plants expressing the disclosed hemoglobin-coding genes. Nowhere in Harper is a step of selecting a hemoglobin-transformed plant for increased starch and/or oil content by comparing the starch and/or oil content of such a hemoglobin-transformed plant with that of a wild-type control plant. Nor does Harper teach or suggest any potential effect of overexpressing a hemoglobin in a plant other than altering the stress resistance of such a plant, let alone the effect in increasing starch and/or oil content in such

a plant.

The combination of Harper with Sowa does not remedy these deficiencies. As also discussed previously, Sowa discloses the potential functions of hemoglobin in plants and suggests that hemoglobin may play a role in maintaining energy status of maize cells in a cell culture. Sowa does not, however, teach or suggest any potential effect of overexpressing a hemoglobin in a plant. Sowa also does not teach or suggest a step of selecting a hemoglobin-transformed plant for increased starch and/or oil content by comparing the starch and/or oil content of such a hemoglobin-transformed plant with that of a wild-type control plant. Thus, it is clear that the combined teaching of Harper and Sowa does not teach or suggest at least one of the limitations recited in the claims as amended, i.e. the selection step. Nor does the combined teaching of Harper and Sowa motivate a skilled artisan to include such a step into the method taught in Harper and/or Sowa since the effect of overexpressing a hemoglobin in a plant in increasing starch and/or oil content of such a plant was not known in the art until the present application.

The further combination of Harper and Sowa with Nykiforuk also does not remedy these deficiencies. As discussed previously, Nykiforuk discloses diacylglycerol O-acyltransferase (DGAT) coding genes, which are completely different from hemoglobin coding genes, and their use in transgenic plants. The teachings provided in Nykiforuk bear no relevance to hemoglobin coding genes or their potential effect in increasing starch and/or oil content of a plant when overexpressed in such a plant. Further, Applicants understand that the Examiner's reliance on Nykiforuk is solely for the teaching of a method in recovering oil from a transgenic plant. Accordingly, it is apparent that the further combination of Nykiforuk with Harper and Sowa will not, and does not, remedy the lack of teaching of a selection step or the effect of overexpressing a hemoglobin gene in a plant as discussed above. Because the combined teaching of the cited references does not teach or suggest at least the selection step recited in the claims as amended, a *prima facie* case of obviousness has not been established.[1] For at least this reason, the rejection should be withdrawn.

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[1] The Examiner bears the initial burden of establishing *prima facie* obviousness. *See In re Rijckaert*, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). To support a *prima facie* conclusion of obviousness, the prior art must disclose or suggest all the limitations of the claimed invention. *See In re Lowry*, 32 F.3d 1579, 1582, 32 USPQ2d 1031, 1034 (Fed. Cir. 1994).

Furthermore, because the art does not recognize the potential effect of overexpressing a hemoglobin in a plant in increasing starch and/or oil content in such a plant, as evidenced by the cited references, one skilled in the art would not have been motivated to include a step of selecting a hemoglobin-transformed plant for increased starch and/or oil content. For at least this additional reason, the rejection should be withdrawn.

For at least the above reasons and for the reasons already of record, further in view of the present amendments, it is respectfully submitted that the cited references do not render the claimed subject matter *prima facie* obvious. Accordingly reconsideration and withdrawal of the rejection is respectfully requested.

CONCLUSION

For at least the above reasons, Applicants respectfully request withdrawal of the rejections and allowance of the claims. If any outstanding issues remain, the Examiner is invited to telephone the undersigned at the number given below.

Applicants reserve all rights to pursue the non-elected claims and subject matter in one or more divisional applications, if necessary.

Applicants are submitting their response within the three-month response period. No fee is believed due. However, if any fee is due, the Director is hereby authorized to charge our Deposit Account No. 03-2775, under Order No. 13311-00008-US from which the undersigned is authorized to draw.

Respectfully submitted,

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